

In re Appl. No. 09/000,366

REMARKS

Claims 1 and 3-14 currently appear in this application. The Office Action of December 19, 2000, has been carefully studied. It is believed that the claims are patentable and reconsideration is respectfully requested.

Support for new claims 13 and 14 can be found in the specification as filed at page 10, line 15 through page 11, line 3; page 11, line 20 to page 12, line 4; and page 12, line 29 through page 13, line 9.

Rejections under 35 U.S.C. 112

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for containing reference to a foreign patent.

This rejection is respectfully traversed. The reference to a foreign patent has been deleted from claim 7. No limitation of the claim is intended by this amendment.

Art Rejections

Claims 1, 3-7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh in view of JP 60-70049, hereinafter JP'049. Katoh is said to teach the concepts of thawing and milling frozen surimi into pieces. JP'049 is said to teach the concept of grinding already frozen fish meats into particles using a cutter.

This rejection is respectfully traversed. In the amendment filed August 5, 1999, applicants submitted a

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translation of JP'049. It is clear from the claim that fish paste products are produced by shearing and grinding frozen fish meat while keeping the said meat at the ⁷stars of the grinding in a frozen state by setting its temperature a -20°C or below [emphasis added]. Also, at page 2, penultimate paragraph, "The present inventors have found from a series of investigations that the lower the temperature of the thawed ground fish meat goes, the higher the quality of the product becomes, and that in particular shearing and grinding the materials as frozen at -20°C or below would result in remarkably improved quality of the products. On page 4, beginning at line 2, "The temperature is kept at not higher than 0°C for a while after start of the grinding.... Temperature not lower than +5°C is suitable for the production which is followed by forming and heating according to the usual processes."

That is, JP'049 discloses that frozen fish meat is ground while still frozen, and the meat is retained at freezing during grinding. However, the present invention is directed to a method for thawing frozen fish meat by grinding the fish meat. This is exactly what JP'049 seeks to avoid, as JP'049 states that a superior product is obtained when the fish meat is kept frozen during the grinding process. Because JP'049 teaches that the fish meat must be kept frozen during the grinding process, there is no motivation for one skilled

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in the art to use this technique in the Katoh process, because Katoh clearly discloses that the frozen fish meat must first be thawed prior to grinding.

Example 1 of the present invention, beginning on page 10, demonstrates the advantages of the present invention over JP'049. Frozen fish meat was ground and milled to substantially uniform particle size, uniformly spread in a vat, and thawed at room temperature. This process took 20-30 minutes to complete the thawing. For comparison, the same frozen ground fish meat (substantially what would have been obtained by the process of JP'049 in which the meat was ground at very low temperature) was thawed by standing at room temperature. This took 6 to 8 hours to thaw the fish meat completely.

Each batch of fish meat was then stirred with sodium chloride, and then with seasonings and water. The fish pastes were then heated or packed in a casing and heated.

Table 1 on page 11 shows the differences in the gel strength in the suwari casing of the invention and the comparison, as well as the gel strength in direct heating for the invention and the comparison. In both cases, the fish paste prepared by the process of the present invention had a higher gel strength.

Moreover, JP'049 discloses that machines for use in the process wherein the frozen fish is ground in the frozen

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state include a silent cutter, Stephan's cutter, or any of those which shear fish meat with a high-speed rotating blade. A grinding machine effecting no shearing operation is not available in this method, as disclosed at page 3, lines 28-31 of the English translation of JP 60-70049.

In the working example 1 of JP'049, all of the food ingredients, including frozen ground fish meat, were mixed together, and then the mixture was sheared and ground by a Stephan's cutter with a rotating speed of 1500 rpm. In the working example 2 of JP'049, a silent cutter with a rotating speed of 1500 rpm was used instead of a Stephan's cutter. JP'049 also states that stopping the rotation adversely affects the production, since a number of tiny ice block emerge (page 4, lines 5-7). Thus, in JP'049, shearing must be continued in thawing the frozen fish meat. No one skilled in the art reviewing JP'049 would be motivated to thaw the frozen ground fish meat without shearing.

The present invention is directed to a method for thawing frozen fish meat by milling a frozen ground fish meat mass to substantially uniform particle size. However, when uniform particles of frozen ground fish meat are sheared and ground as in JP'049, the range of the particle sizes becomes larger, i.e., both large and small particles are produced. Since the large particles thaw slowly and the small particles thaw more rapidly, the frozen ground fish meat is not

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uniformly thawed. Thus, shearing makes the process of the present invention, in which the fish meat mass is milled to a substantially uniform particle size, meaningless, and it is impossible to obtain particles which are substantially uniform in size.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh et al. and JP'049 in view of JP'06-133739, hereinafter JP'739. Katoh et al. are said to teach the concepts of producing kamaboko by molding ground fish, heating the ground fish while in the mold for network formation, and further heating. The Examiner concedes that neither Katoh et al. nor JOP'049 teaches the concept of heating the fish paste by passing electric current through the fish. JP'739 is said to teach heating fish by passing electric current through it.

This rejection is respectfully traversed. As discussed above, there is no motivation to combine Katoh et al. with JP'049. Katoh et al. disclose grinding thawed fish meat, and JP'049 discloses grinding frozen fish meat while the fish meat is still frozen. There is nothing at all in JP'049 that would lead one skilled in the art to grind frozen fish meat in order to thaw the frozen fish meat. Therefore, JP'049 adds nothing to Katoh et al. to teach one to thaw frozen fish meat by grinding. The disclosure of methods for making kamaboko add nothing to the basic concept of thawing frozen

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fish by grinding and milling to form substantially uniform particles.

It is respectfully submitted that the cited references cannot possibly be combined to arrive at the present invention. Katoh et al. produce a fish paste product by stirring and mixing a surimi-based starting material, forming the surimi into a specific shape, and heating the molded product. The starting material is continuously charged, stirred, and mixed so that shearing of the starting material occurs. When frozen fish is used, the fish is first thawed. JP'049 adds nothing to this disclosure, because JP'049 discloses preparing fish paste products from frozen ground fish meat while shearing the fish meat. JP'049 teaches milling frozen fish before thawing. JP'049 does not disclose using the shearing process for thawing, nor is there any disclosure or suggestion that the shearing process actually thaws the fish meat.

Both Katoh et al. and JP'049 require that the fish meat be sheared. There is no shearing at all in the process of the present invention. The shearing disclosed in JP'049 produces particles of varying sizes, while the process of the present invention produces particles which are substantially the same in size. Thus, the shearing step used in both Katoh et al. and JP'049 cannot be used in the process of the present invention because the process of the present invention results

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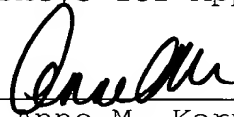
in particles which are substantially uniform in size.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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"Version with markings to show changes"

1. (Third Amendment) A method for thawing frozen ground fish meat which comprises milling a frozen ground fish meat mass ~~in to~~ a substantially uniform ~~manner~~ particle size and then thawing it by elevating temperature.

7. (Third Amendment) A process for producing materials for fish paste products which involves the step of milling a frozen ground fish meat mass in a substantially uniform manner, thawing the milled fish meat by elevating temperature to give a ground fish meat; and mixing under stirring said ground fish meat together with additives with the use of a pin mixer, wherein said additives include at least one of a seasoning, starch, sugar, and a polyphosphate, ~~and wherein said pin mixer is shown in Fig. 1 or JP 3-411458.~~